Journal of the Society of Arts.

FRIDAY, OCTOBER 29, 1869.

Announcements by the Council.

NOTICE TO MEMBERS.

The One-Hundred-and-Sixteenth Session of the Society will commence on Wednesday, the 17th November, when the Opening Address will be delivered by Lord HENRY G. LENNOX, M.P., Chairman of the Council, and when the Prince Consort's Prize, awarded at the last Examinations to Mr. William John Wilson, will be presented.

The following are the dates of the Wednesday evening meetings, the chair being taken at 8 o'clock:—

1869.	November	—	—	17	24	
„	December	1	8	15	22	—
1870.	January	—	—	19	26	
„	February	2	9	16	23	
„	March	2	9	16	23	30
„	April	6	—	20	27	
„	May	4	11	18	25	
„	June	—	—	—	—	29*

For the Meetings previous to Christmas, the following arrangements have been made:—

NOVEMBER 17.—Opening Address by Lord HENRY G. LENNOX, M.P., Chairman of the Council.

NOVEMBER 24.—"On Silk Supply." By THOMAS DICKINS, Esq., Chairman of the Silk Supply Association.

DECEMBER 1.—"On an Improved Means for Laying a Tunnel for the Transit of Passengers across the Channel." By ZERAH COLBURN, Esq., C.E.

DECEMBER 8.—"On Prints and their Production." Being a sequel to a former paper, entitled "Engraving and other Reproductive Art Processes." By S. T. DAVENPORT, Esq.

DECEMBER 15.—"On India-rubber, its History, Commerce, and Supply." By J. COLLINS, Esq.

DECEMBER 22.—"On the Recent Improvements in Small Arms, British and Foreign." By Capt. O'HEA.

A book of blank Tickets of Admission to the Meetings will be sent to each Member, who is privileged to introduce two friends to each Meeting on their presenting orders signed by him. Additional Tickets will be forwarded on application.

The first Course of Cantor Lectures for the ensuing Session will be "On the Spectroscope and its Applications," by J. NORMAN LOCKYER, Esq., F.R.S., and will consist of three Lectures, to be delivered on Monday Evenings, the 6th, 13th, and 20th December, at Eight o'clock. Other courses will also be given during the Session, one, by A. W. WILLIAMSON, Esq., F.R.S., Professor of Chemistry in University College, London, "On Fermentation, especially in connexion with M. Pasteur's Researches," having been already arranged. These Lectures are open to Members, each of whom has the privilege of introducing two friends to each Lecture. Tickets for this purpose will be forwarded in due course.

Members are reminded that, should any of their friends wish to join the Society, the opening of the Session is a favourable opportunity for proposing them.

* The Annual General Meeting: the Chair will be taken at Four o'clock. No Visitors are admitted to this Meeting.

IMPROVED CABS.

The Council of the Society of Arts offer the following medals for improved hackney carriages specially suited to the metropolis:—

The Society's Gold Medal for the best and most convenient open hackney carriage for two persons.

The Society's Silver Medal for the second-best ditto.

The Society's Gold Medal for the best and most convenient closed hackney carriage for two persons.

The Society's Silver Medal for the second-best ditto.

The Society's Gold Medal for the best and most convenient hackney carriage for four persons, either open or closed, or both.

The Society's Silver Medal for the second-best ditto.

Lightness of construction, combined with adequate strength and durability, will be especially considered in making the awards.

The awards will be made after actual trials of the carriages extending over a certain period.

Communications describing the carriages must be sent to the Secretary of the Society of Arts before the 1st January, 1870, the carriages to be sent to a place hereafter to be appointed.

The Council also offer the Society's Silver Medal for the best instrument, to be affixed to a cab or other hackney carriage, for indicating the fare as between the passenger and the driver, whether by registering the distance travelled or otherwise, and which instrument shall also indicate, for the convenience of the cab-owner and of the driver, the total distance travelled during the day and the total amount earned. The instruments competing, with full descriptions of their construction, to be sent to the Society's House before the 1st January, 1870.

Competitors may, at their option, sign their communications, or may forward with them sealed letters containing the name and address of the writer.

The Council reserve to themselves the right of withholding all or any of the medals, in case none of the carriages or instruments possess, in their opinion, sufficient merit.

In the trials of the several carriages, the small amount of vibration and noise will be duly considered by the judges.

SUBSCRIPTIONS.

The Michaelmas subscriptions are due, and should be forwarded by cheque or Post-office

order, crossed "Coutts and Co.," and made payable to Mr. Samuel Thomas Davenport, Financial Officer.

Proceedings of Institutions.

City of London College.—The annual distribution of prizes and certificates took place on Tuesday evening, the 26th October, in the rooms of the College, Sussex Hall, Leadenhall-street. They consisted not only of prizes given by the college, but those awarded by the Society of Arts and the Government Department of Science and Art. The distribution took place under the presidency of the Lord Bishop of London.—The Rev. R. Whittington, the principal, thanked his lordship for attending on that occasion, and thus continuing to evince the deep interest he felt, when Bishop of Lincoln, in that institution, now that he was Bishop of London. The average number attending the college annually was 750, and of 56 candidates who went up from this college to the Society of Arts Examinations not one was plucked. Students of that college had obtained also the Prince Consort's prize three times out of seven, and 34 first-class certificates during the present year. He was also happy to inform the meeting that in almost every case where they went up for competitive examination, for offices in the civil service, they had succeeded; and it was his duty and pleasure to tell his lordship and the meeting that Mr. Alderman and Sheriff Cotton had given a prize of £5 for modern languages, and Mr. Alderman Finnis £5 annually, to increase the prizes already in existence.—His lordship then proceeded to distribute the prizes, and then addressed some observations to the meeting. He had, he said, learned during his lifetime that it was pleasanter to examine than to be examined, and could assure them that he felt great pleasure in distributing prizes among the successful candidates. He had long taken a deep interest in the success of institutions like the present. They all knew that civilisation generally travelled from the east to the west of London, and when the idea was first started of founding Metropolitan Young Men's Classes, it was upwards of two years before the movement, which commenced in Bishopsgate-street, reached Piccadilly. He had at the time four classes in his own parish of St. James's, Piccadilly, one of which was under his own immediate care, and he could assure them that the efforts then made were highly successful. The movement had only commenced at that time, and now, after so many years' absence from London, he found this City of London College flourishing beyond the hopes of its best friends. He saw it had its own buildings, its own professors and tutors, and was under Royal patronage. For that result he congratulated the Rev. Mr. Whittington and the members of his council.—Sir John Lubbock moved a vote of thanks to the Society of Arts for the number of prizes they had given; and, in reference to his proposed plan for improving the education of bankers' clerks, he begged to assure them that Mr. Whittington and the City of London College gave their kind co-operation in the matter, for which he expressed his cordial thanks.—The Rev. Wm. Rogers seconded the motion, and congratulated the meeting on the fact that, although the numbers were not increasing, the college was really popular, which he believed was principally owing to the education given, based as it was upon religion.—The motion was unanimously carried.—The Rev. Dr. H. Browne moved a vote of thanks to the examiners, who, by the sanction of their names and their exertions, had done so much good, which was also carried.—A vote of thanks was next passed to the professors and the other officers of the college, after which the Lord Bishop received a vote of thanks for his attendance, and the proceedings terminated.

EXAMINATION PAPERS, 1869.

(*Continued from page* 876.)

The following are the Examination Papers set in the various subjects at the Final Examination held in April last:—

THEORY OF MUSIC.

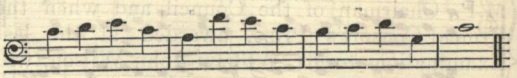
THREE HOURS ALLOWED.

RUDIMENTS OF MUSICAL GRAMMAR.

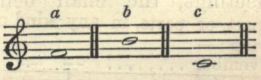
(*Nos.* 1 *to* 4 *to be answered on music paper.*)

1. Give an example (in musical notation) of every kind of time with which you are acquainted. Place the time signature at the head of each.

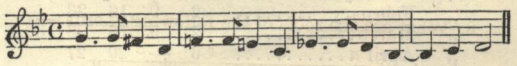
2. Write the following, at the same pitch, on the treble or any other stave:—



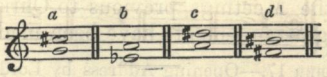
3. Add a perfect fourth to (above) *a*, a perfect fifth to *b*, and a minor seventh to *c*.



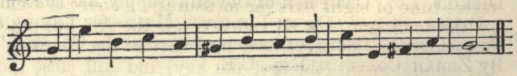
4. Transpose the following into *Si* (B) minor:—



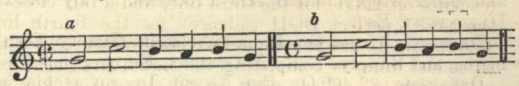
5. In what scales or keys (severally) are the following tritones?



6. Into what scales or keys does the following modulate:—



7. How many beats in a bar should be made to *a*? How many to *b*?

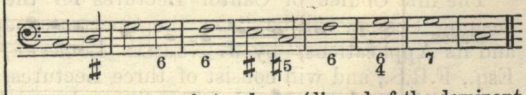


8. Give as many names of musical composers as you can, adding those of their native countries, with the centuries in which they flourished.

HARMONY.

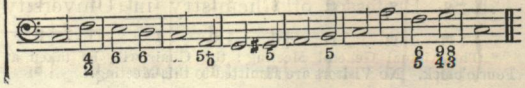
(*Nos.* 1 *to* 7 *to be answered on music paper.*)

1. Add three parts to the following, introducing as many discords by suspension as can be properly prepared, sounded, and resolved:—

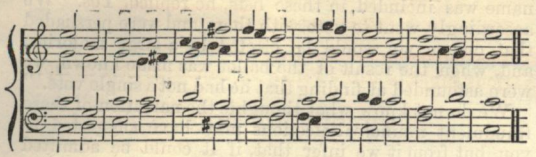


2. Write the perfect cadence (discord of the dominant seventh and its resolution) in the keys of *La* (A), *Si* ♭ (B♭), *Do* (C), and *Re* (D).

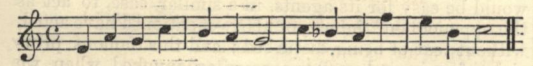
3. Add three parts to the following:—



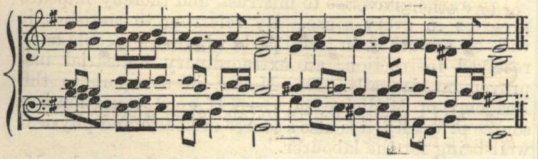
4. Figure the bass of the following:—



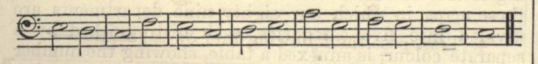
5. Harmonise the following:—



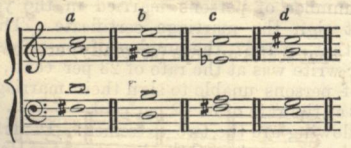
6. Put the following into score for treble, alto, tenor, and bass, using the proper clefs for each:—



7. Add a part, or parts, in any kind of counterpoint, to the following:—

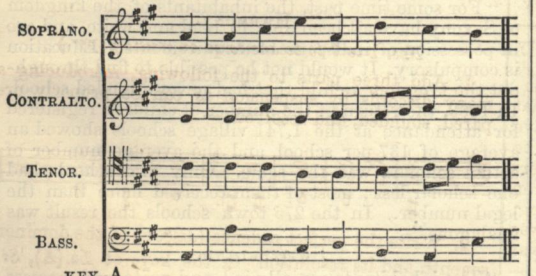


8. What are the roots of the following chords:—



ELEMENTARY MUSICAL COMPOSITION.

1. Continue the following, so as to make a common metre tune of eight bars (or measures). There is a close on the dominant (a SOH cadence) for the first line which is here given; let there be a modulation into the key of the sub-dominant (the first flat key) and full close (perfect DOH cadence) in this key for the second line; a return to the original key, and close on the submediant (cadence on LAH) for the third line, and a full close on the tonic (perfect DOH cadence) for the fourth line. The candidate has to compose six bars (measures) for the three last lines, so completing the eight bars (measures) of the whole. There must be no changes of key but those here specified. Those who write in the common notation are requested to write all the exercises in full vocal score as below, not two parts on one staff:—



KEY A.

:d	|	l	:m	|	s	:d	|	f	:m	| r ‖
:s$_l$	|	s$_l$	:d	|	s$_l$	:l$_l$	|	l$_l$.t$_l$	:d	|	t$_l$
:m	|	m	:m	|	d	:d	|	r	:m.f	|	s
:d$_l$	|	d	:l$_l$	|	m$_l$	:f$_l$	|	r$_l$	:d$_l$	|	s$_l$ ‖

2. Compose to either of the following verses of poetry an air for soprano, with an instrumental or vocal bass, properly accentuating the words, and generally expressing their sentiment:—

If I had thought thou couldst have died,
I might not weep for thee;
But I forgot, when by thy side,
That thou could'st mortal be;
It through my mind had never pass'd,
That time would e'er be o'er;
When I on thee should look my last,
And thou should'st smile no more.

Charles Wolfe, 1791—1823.

O come! for the lily
Is white on the lea;
O come! for the wood doves
Are paired on the tree;
The lark sings with dew
On her wings and her feet;
The thrush pours his ditty
Loud, varied and sweet.
So come, where the twin-hares
'Mid fragrance have been,
And with flow'rs I will weave thee
A crown like a queen.

Allan Cunningham, 1784—1842.

3. Compose a piece for four voices (SCTB) of from sixteen to twenty-four bars (measures), common or triple time (*i.e.*, in any kind of measure), to either of the following extracts:—

One by one the sands are flowing,
One by one the moments fall;
Some are coming, some are going;
Do not strive to grasp them all.
One by one thy duties wait thee,
Let thy whole strength go to each;
Let no future dreams elate thee,
Learn thou first what these can teach.

Adelaide Anne Procter.

Sing unto the Lord, for he hath done excellent things; this is known in all the earth.

Cry out and shout, thou inhabitant of Zion, for great is the Holy One of Israel in the midst of thee.

Isaiah, xii.

THE REPORTS OF THE "DÉLÉGATIONS OUVRIERES" ON THE PARIS EXHIBITION.

Some time after the Society of Arts had announced its intention of giving facilities to English workmen to proceed to the Paris Exhibition, to report thereon, the French government, following the Society's example, issued a decree which invited the various trades of France to elect delegates, to be sent to Paris to report, like the English artizans, upon the trades represented at the Exhibition.

Accordingly, a commission was formed, consisting of M.M. Victor Dillais, Baugrand, Arnould Desvernay, Arnaud Jeanti, Balsan Martin, Barbedienne, Barbezat, Bignon, Binder, Blaise (des Vosges), Butat Callou, Carlhian, Chevet, Christofle, Dentu, Dommartin, Dréolle, Durenne, Dusautoy, Ducuing, Fauler, Flaxland, Fourdinois, Froment Meurice (Émile), Germain, Gillou, Girardin (Emile de), Godillot, Gouin, Grellou, Groult, Haas, Halphen (Germain), Klein, Kœnigswarter, Jenty, Larsonnier, Latour, Laville, J. Lebaudy, Lebel, Lenoir, Lévy (Fr.), Louvet, Menier, Michau, Michel (Léon), Moréno-Henriques, Muron (Casimir), Mourceau, Normand, Payen (Alph.), Pereire (Henri), Picard, Plée (Léon), Ravaut, Renard, Rondelet, Roulhac, Rouvenat, Salmon, Sauvage, Servant, Teissonnière, Thibaut (Germain), Thiébaut, Varin, Vitu (Auguste), and presided over by M. F. Devinck, for the purpose of securing facilities to the delegates visiting and studying the Exhibition, and further to insure the publication of the reports which would be drawn up by the delegates.

Upwards of 150 of the Parisian trades and professions, &c., responded to the invitation, and the results of the labours of the delegates have now been published. The work consists of three large quarto portfolios containing the reports, which occupy altogether 1,400 pages.

The following is a translation, by Mr. A. S. Bury, of an extract from the report on Education in General by the Delegates of the National Society for the Extinction of Pauperism, on the 10th Group of the Paris Exhibition, 1867:—

Of all the obstacles that men devoted to the well-being of humanity, and disposed to act with a view to social progress, have to contend with, there is none more difficult to overcome than that which springs from ignorance. How many means of emancipation for the working-men have already failed for want of being understood! How many great conceptions have fallen to the ground, because the small number of privileged, educated persons have fancied they perceived in them a danger to their prerogatives! What catastrophes, what social evils, what offences, and even what crimes have been the result of the darkness maintained in the bosom of the multitude! In order to be convinced of the sad truth that ignorance often strengthens the arm that strikes unjustly, and is the principal cause of those culpable acts which the tribunals are continually called upon to suppress, it will suffice to glance at the report of the Minister of Justice, and in the chapter which relates to the Court of Assizes, it will be seen that, during the period from the year 1861 to 1865, out of 22,752 persons accused, 18,759 could neither read nor write; and that, out of 2,218 convicts imprisoned at Toulon, on the 1st January, 1865, more than half (1,330) could neither read nor write.

The application of universal suffrage, of which we are so proud in France—and, be it said at the same time, of which we make so bad a use—the application of universal suffrage is corrupted by reason of the ignorance which still clings to the inhabitants of certain localities, and even to some classes of the working-men in the city. But, with the latter, a kind of education takes the place of actual knowledge, and the evil is less to be feared than in the country. Read what M. Charles Robert* narrates to the persons in a state of convalescence at Vincennes:—"The scene took place in one of the western departments. At the close of the late municipal elections, in 1866, a mayor, not having been re-elected member of the municipal council, was replaced at the nomination of the prefet, who was desirous of conforming to the instruction of his government, namely, that a mayor should be chosen, if possible, from among the municipal councillors. The prefet had, therefore, appointed a successor, in the assurance that he had responded to the wishes of the electors. Some time after, a large deputation of the inhabitants of the parish waited on the prefet, and being admitted to his presence, the spokesman thus addressed him:—'Ah, Mr. Prefet, we are in great distress. We liked our former mayor very much, and we have just heard that he has been replaced.' 'But,' replied the prefet, 'if it be true that you really liked him, and were satisfied with his administration, why did you not re-elect him a municipal councillor? Why have you yourselves excluded him from that assembly?' The spokesman of the deputation seemed rather confused, but, after a little hesitation, at last replied, 'We thought we had re-elected him, but this is how it happened. The former mayor, whom we all liked (and we are the largest party), had an opponent in the parish, who was endeavouring by every means to attain to the councillorship. This person had some lists printed, which we distributed from door to door, bearing the names of the candidates, but that of our former mayor was omitted. We cannot read, and when we inquired of this person whether the late mayor's name was included in these lists, he replied, Yes. We accordingly went to vote with them, and were persuaded that our mayor would be elected by a large majority, and, when the result of the ballot was made known, we were astounded at finding that he had not a single vote.'"

We do not know what thoughts the narration of these fraudulent municipal elections may have suggested to you, but from it we infer that, if it could be admitted for a moment that the power which rules us was capable of forgetting its dignity, even for an instant, it would be easy for its agents, in a similar case, to act as the opponents of the mayor above-mentioned have acted, without fear of being disturbed; and this famous principle of universal suffrage, so often invoked when we complain of the want of liberty, would then be no more than a dreadful mockery.

Ignorance gives rise to mistrust, and thereby impedes progress in every sense. By referring to statistics, it will be seen that, in those parts where the people have received instruction, an extraordinary industrial improvement prevails. Dr. Melier, in a report to the Academy of Medicine, says:—"If good education is a source of wealth, it is also a source of health and physical well-being for the labourer."

We have before us a novel statistical map, by M. Manier, of the departments of France, classified according to the amount of education exhibited in each. To these maps, in which our eighty-nine departments are divided into five categories, each distinguished by a separate colour, is annexed a table, showing the number of conscripts per 100 who could neither read nor write, and the number of persons married in the year who could not sign the marriage certificate. The result shown is that, in 1867, the number of conscripts unable to read or write was at the rate of 23 per cent., and the number of persons unable to sign their marriage certificate was at the rate of 33·42 per cent.

The following are the two extremes:—Department of Meurthe, two per cent., and the department of Haut Rhin, fifty-six per cent., of conscripts unable to read or write. Department of Bas Rhin 1·44 per cent., and the department of Haute-Vienne 74·48 per cent. of persons unable to sign their marriage certificate.

At Paris, during the month of June, 1867, out of 3,024 bridegrooms, 200 were unable to sign their name. *(Statistical Report).*

M. Manier has not confined himself to a map of France, but has made one of a similar description of Europe generally, classifying the countries in four categories, with the following explanations, which we reproduce:—

FIRST CATEGORY.—*Countries most advanced as regards Education. (See Map, p. 892).*

SAXONY.

"For some time past, the inhabitants of the kingdom of Saxony have all been able to read and write, and are in possession of indispensable acquirements. Education is compulsory. It would not be possible to find throughout the kingdom a child that had never attended school. In 1863, the return of the number of children registered for attendance at the 1,741 village schools showed an average of 137 per school, and the average number of actual scholars was the same. Only two schools had one scholar less; most of them received more than the legal number. In the 275 town schools the result was analagous."

SWITZERLAND.

"The inhabitants can all read and write, and possess other indispensable knowledge. Nearly all the children, from the age of 7 to 15, receive a sound education. In the canton of Zurich, the proportion of scholars is 1 in every 4 persons; in the canton of Thurgau 1 in 5; in the canton of Vaud, nineteen-twentieths of the children attend school. In the canton of Berne, the conscripts can read,

* M. Charles Robert, Councillor of State, and Secretary to the Minister of Public Education.

write, and cipher correctly; only 3 or 5 per 100 are unable to do so; there are 7,160 schools in Switzerland, containing 390,000 pupils. Switzerland expends 1f. 95c. (about 1s. 7d.) per head for education, which is compulsory."

Small States of North Germany.

"In all these states education is general and compulsory. It is seldom one meets with an an illiterate person. All the children attend school. The above specially refers to the Grand Duchy of Nassau, the Grand Duchy of Hesse, Hanover, and the Grand Duchy of Weimar-Eisenach. There are a great many schools, all well organised."

Denmark.

"The Danes, with very few exceptions, can all read, write, and cipher. The children attend school to the age of 14. Education is compulsory. There are 2,520 schools, containing 161,495 pupils."

Prussia.

"Three per cent. of the conscripts are illiterate. Nearly all the children, except in some of the eastern provinces, attend school regularly. In 1867, there were 126,197 schools in Prussia, containing 3,090,294 pupils. Education is compulsory."

Sweden.

"The proportion of the inhabitants of Sweden unable to read or write is 1 in 1,000; 1 in 5 attends school. Education is compulsory."

Baden.

"All the children receive education. By virtue of a law passed in 1864 by the two chambers, unanimously with the exception of two votes, the schools are under the direction of a commission elected by the heads of families, are self-supporting, and not dependent either on the State or Church."

Wurtemberg.

"There is not a peasant, or a girl in the poultry-yard, or in the tavern, that cannot read perfectly, and write and cipher. Every village of thirty houses is provided with a school. All the children attend school. Education is compulsory. In 1838, the proportion of scholars was 1 to 8 of the population."

Holland.

"Public relief is withdrawn from all poor families who neglect to send their children to school. The number of illiterate persons is said to be at the rate of three per cent. In 1838, the proportion of scholars was one to eight of the population."

Norway.

"Nearly all the Norwegians can read, write, and cypher tolerably. One in seven attends school. Education is compulsory."

Bavaria.

"On an average, seven per cent. of the conscripts have had little or no education. There are 8,469 schools, containing 611,451 pupils. Education is compulsory."

Second Category.—*Countries less advanced as regards Education*:—

France.

"Twenty-three conscripts out of a hundred can neither read nor write. In 1866, thirty-four brides and bridegrooms were unable to sign their marriage certificate. More than 200,000 children, from seven to thirteen years of age, do not receive any education. Of those who have been to school, about thirty-four per cent. leave it knowing nothing, or next to nothing. The parts where ignorance is most prevalent are—the peninsula of Brittany, the regions to the south of the Loire, in the centre and to the south of France, and the districts bordering on Spain and the Mediterranean. There are 74,340 primary and infant schools in France, receiving 4,984,108 children, and 32,383 evening classes, attended by 830,000 adults. The amount allowed by the state for education is 55 cents. (about 5d.) per head."

Belgium.

"In 1863, thirty militia-men out of 100 could neither read nor write. In 1865, out of 1,964 brides and bridegrooms, 1,032, or forty-nine per 100, were unable to sign their marriage certificate. There are 4,814 schools, and nearly 600,000 pupils."

England.

"Education is diffused throughout Scotland; it is mixed with ignorance in England, and little developed in Ireland. About half the inhabitants of Great Britain can neither read nor write. In 1858, out of 100 prisoners at Preston, forty were ignorant of the name of Jesus Christ, and sixty of the name of their Queen. The free associations are making every effort for the advancement of education. There are 59,065 schools, containing 2,535,462 pupils. The amount expended by Great Britain on education is at the rate of 1f. 19c. (about 11d.) per head.

Third Category.—*Countries in Arrear as regards Education.*

Italy.

"Education is tolerably diffused in the northern provinces and in Tuscany, but in the south and in Sicily the people are immersed in the depths of ignorance and superstition. Taking the various provinces together, the mean result is a general state of ignorance. In 1864, there were 31,803 schools, attended by 1,177,914 pupils. The amount expended by the State on public education is at the rate of 41c. (about 3½d.) per head."

Austria.

"In the German provinces the people are educated; they are very ignorant in Transylvania, Gallicia, Hungary, and the military frontier. Since 1774, education has been compulsory throughout the empire; but the rule is only observed in the German provinces. In the Tyrol, in Bohemia, and Moravia, 99 out of 100 of the children attend school. The peasants of Gallicia cannot read, nor do they send their children to school. It is right to add that, in conformity with the disposition of the people, no schools are established in the villages. It is only in the towns that the children go to school, and that voluntarily. In Hungary, more than half the children do not attend school. In Croatia, hardly 20 per 100 of the children go to school. A certificate of having acquired some religious instruction is necessary in order to obtain an apprenticeship, or to be married."

Greece.

"There is a great want of indispensable acquirements. Ignorance is general. The proportion of scholars is 1 to every 8 of the population."

Fourth Category.—*Countries very backward.*

Pontifical States.

"The inhabitants of the Pontifical States are very ignorant."

Spain.

"Education is very backward in Spain, although there are 24,353 schools, containing 1,251,653 pupils. In 1856, the proportion of scholars was 1 to 65 of the population. The people are superstitious and ignorant. The amount expended for education is at the rate of 40c. (about 3½d.) per head."

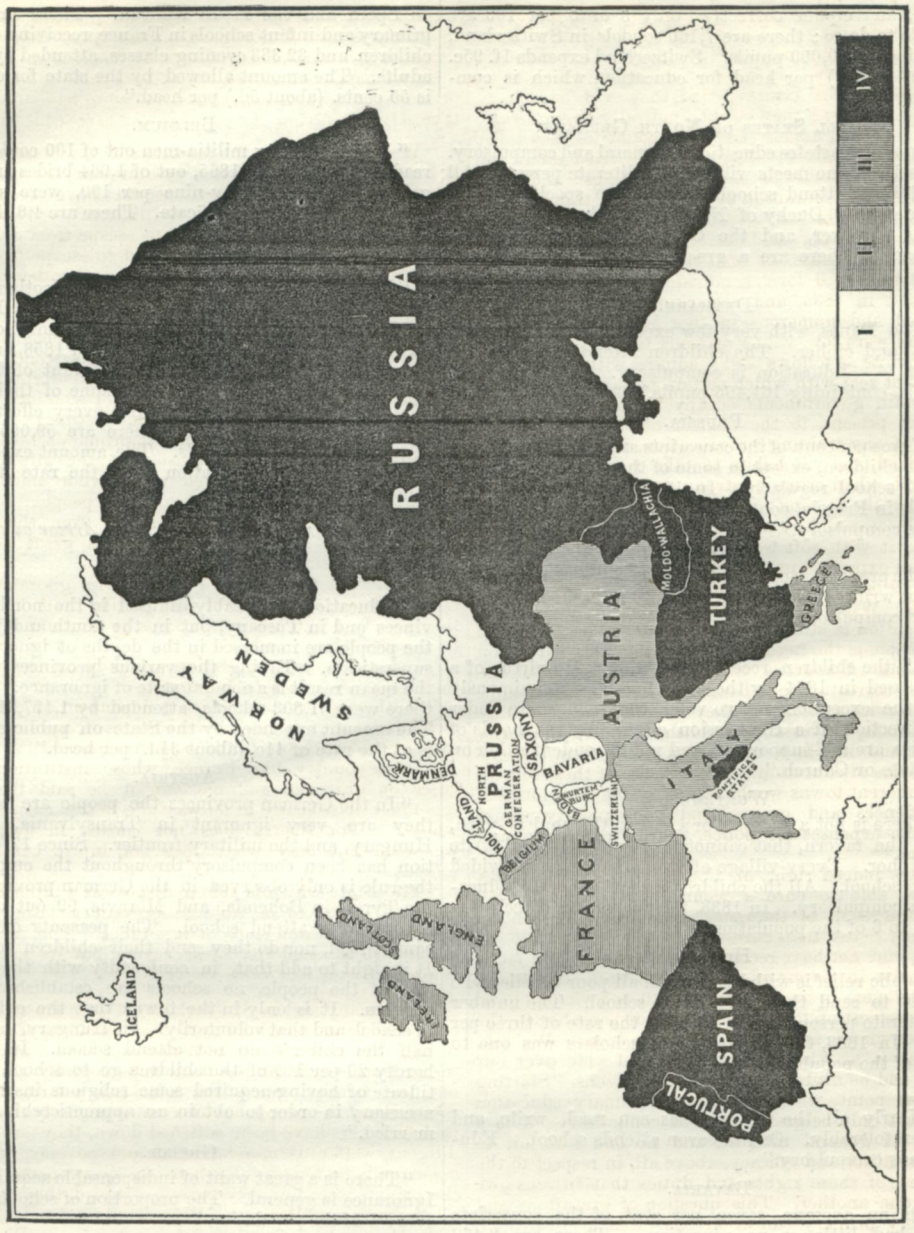
Portugal.

"The people are ignorant, the schools are few in number, and badly attended. The proportion of scholars is 1 to 81 of the inhabitants."

DIAGRAM SHOWING THE STATE OF INSTRUCTION IN EUROPE

PREPARED BY M. J. MANIER,

to accompany the Report on the 10th Group of the Paris Exhibition of 1867 by the Delegation of the National Society for the Extinction of Pauperism, extracted from the "French Artizans' Reports on the Paris Exhibition, 1867," published under the Presidency of M. F. Devinck, by Messrs. A. Morel, Paris.



I. (White.)—Well educated.
II. (Horizontal.)—Educated.
III. (Perpendicular.)—Partially educated.
IV. (Black.)—Ignorant.

Moldo-Wallachia.

"Nearly the whole population is devoid of education."

Russia.

"Few of the peasants can read or write. Out of a population of 82,000,000 comprised in this empire, only 3,500,000 (or 4 per 1,000) have received any education, and of this number a fourth part is included in Poland. The amount expended by Russia (in Europe) for public education is at the rate of 29c. (about 2½d.) per head."

Turkey.

"Ignorance is universal, and there is not the least acquaintance with the most indispensable requirements."

From these tables, the fact may once more be asserted that the backward state of education in the several countries is in proportion to the influence of the clergy, whatever it may be, in public affairs. Switzerland, desirous of ranking foremost, as it is placed on the map, has perfectly understood this fact. The Grand Council of Berne has just decided, by 228 votes against 77, that experience has proved the incompatibility of the observance of the provisions of the law concerning education with the absolute obedience that members of religious orders owe to their superiors, and, therefore, no person belonging to these orders can hereafter be admitted to the office of teacher. Consequently, all clerical schoolmasters attached to public primary schools will be considered as under notice to quit.

Here is a small country giving the example of an important and frank resolution; it has not gone to work in any round-about manner; it simply said, "Here are people who supply bad intellectual seed; there is no hope that at some future period they will be able to provide any better; they must be radically swept away" —which has been done. In other countries they talk; discussions take place; disputes are carried on in the public press; speeches are made at meetings; and there it ends. At the expiration of a few days, things go on the same as before.

We have already said that to ignorance may be attributed the cause of many wicked actions. M. Cousin, one of our former ministers of education, was in Holland in 1836, and remarking that the schools were good and numerous in that happy country, and that there were few young persons to be found in the prisons, wrote as follows:—"I admire with sorrow the inconsistent zeal with which certain philanthropists, and even certain governments, occupy themselves with the subject of prisons, to the neglect of schools. In the absence of any training or education, they allow crime to be formed, and vile habits to take root during childhood; and, when crime is strong and deep-rooted, then they undertake to cope with it. They endeavour to put it down by fear and by punishment, or, in some sort, to overcome it with soft words or caresses. Thought and money are expended in vain, and the result is astonishment at all being useless, because it is simply contrary to reason. Without doubt correction is of importance, but prevention is still more important. The education of the people is the necessary foundation of good prison government. I approve as strongly as possible of the schools of correction, but I consider them destined to be of little service as long as they remain unsupported by public schools, universally established and compulsorily attended, and in which instruction would form but one of the means of education. The expense of these schools on the different towns would result in the committal of fewer offences and crimes, and consequently would reduce the expenses for police, and for repression and correction."*

You are indeed right, M. Cousin, for allowing that a doctor is able to cure a wound, the scar will still remain, the result of the remedies applied. Prevention is certainly better than cure.

We should not have recorded such opinions and facts, so conclusive in favour of public education, but that we persist the more in maintaining that it is a victory to be placed foremost of those that are indispensable to the success of moral and material reformation. We ask, then, that it may be developed far and wide over our country, and be made accessible to all citizens. Starting from that point, we maintain that primary education should not only be gratuitous, but compulsory; it is a measure of general interest, and no one can fail to admit its utility and efficacy, above all, in respect to the observance of those rights and duties that citizens owe towards one another. This question of gratuitous and compulsory primary education has often been treated, but never solved, We would say, in the words of a schoolmaster in the Department of Pas-de-Calais, whose opinion was asked relative to the compulsory system, "Why hesitate any longer? Necessity, sooner or later, will lead to compulsory education, and the opportunity of raising a whole people to welfare and order will have been lost." There is no reluctance to place restraint on liberty when material interests are at stake, but hesitation is shown when the chief interests of society are concerned. "The danger of a confusion of classes is also spoken of. But can the classification of a whole nation become confused because it is called upon to be educated. It is an absurd inference." But it is also said to be a revolutionary idea. "What does that matter," replies a schoolmaster of the north, "if it be a good one. A law framed for the prevention of moral infanticide would be neither less useful, nor more unjust, than that which punishes abortion, or useless cruelty towards animals."

As we have commenced, we will continue to quote the opinions of several schoolmasters, who have declared themselves in favour of compulsory and free education:—

"We do not ask for the severities of the Convention; and yet, if the designs of that revolutionary government had been executed, France would have been two centuries further advanced in civilisation."—(*Nord.*)

"We ought not to be allowed to escape from going to school any more than we are allowed to escape from the conscription. The security of the country depends as much on the good education of the people as on an armed force."—(*Nord.*)

"Has it not been found necessary to compel the adoption of vaccination and of the metric system? Few years would pass before the people, more enlightened as to their wants, would bless the legislator who introduced the system of compulsory education."—(*Oise.*)

"A law compelling attendance at primary schools, and accompanied by a wide extension of the gift of free admission, would be received with favour among the enlightened portion of the country people, without meeting with any strong opposition from the other portion. The nation is ripe for this great act."—(*Ardennes.*)

"Sad is the liberty that gives rise to ignorance and often to corruption. Society may justifiably make use of the remedy within its reach. Yes, it can, and it ought to do so."—(*Seine Inferieure.*)

"I think the only opposition would be on the part of the clergy."—(*Charente-Inferieure.*)

"With a government which is dependent on electoral power, education is due to everyone, as all have rights to exercise and duties to fulfil."—(*Lot et Garonne.*)

"In a country like France, whose institutions are based on universal suffrage, can it be said that the ignorance of so many in no way affects the nation as a whole? For liberty does not consist in doing all we wish, but only what does not injure others."—(*Aube.*)

"The State which is able to dispossess a proprietor of his land ought to be able to prevent a father from keeping his son in a state of ignorance. The means to accomplish this end are, I fear, severe, but its necessity is also extreme."—(*Haute-Soane.*)

In Germany and in Switzerland children are no longer compelled to attend school by force, or by means of punishment; they now go with pleasure, and have a liking for instruction, which diffuses itself imperceptibly throughout the family. Since the scholastic reformation in Switzerland, the people have become immensely changed; their manners have been softened down, they are more diligent, welfare is more general, and poverty, once so common, is no longer tolerated. In many parts where the prisons were formerly always occupied, they are now all the year round empty. Why should not public education be raised to the same level in France? Would it not be productive of like results?

"Free education would realise the most earnest desires of the rural population. The first and greatest obstacle to proper attendance at the country schools is undoubtedly the compulsory fees."—(*Pas-de-Calais.*)

"Children should be received at school on equal terms. The paying scholars invariably look down with scorn upon the poorer ones, admitted free."—(*Nord.*)

"The religious associations have, in some measure, accustomed the people to gratuitous education."—(*Nord.*)

"From close observations, I can testify to the school fees being a heavy burden on our peasants. I know that the actual poor are admitted free; but if to the free-list were added those who were in a position bordering on poverty, this list would then comprise two-thirds of the number of scholars. And I do not hesitate to

* On Public Education in Holland, 1837.

state, in spite of all I may read to the contrary, in writings more or less official, that free education would be a great boon, and received as such. The idea has, it is true, met with some opposition, but I have been struck with this fact, apparently inexplicable, that those most opposed to its realisation, either at deliberative assemblies or elsewhere, are they who sanction it, and even beg for it when it concerns schools belonging to different religious sects."—(*Loiret.*)

"With this system of gratuitous education, families in easy circumstances will undoubtedly bear the greatest burden; and it will be said, is it right that a family having no children at school should pay the same as those who have. I would reply that, in ten or fifteen years, this family might probably have become modified, and comprise several children."—(*Manche.*)

"The free list for the poor gives rise to odium and conflicts."—(*Cotes-du-Nord.*)

"In the poor parishes, payment for instruction and other expenses are insurmountable difficulties to attendance at the schools."—(*Pyrenees-Orientales.*)

"It matters little whether the rich send their children to the parish school or not. They are more interested than anyone that the interests of society should be protected."—(*Var.*)

"There is a great difference with respect to free education in towns and in the country. Due regard must be had to the situation of the peasants, who, being in narrow circumstances without being actually poor, are ashamed to ask for free admission. The required payment, with the necessary books, &c., amounts annually to about 40 francs (32s.); to this must be added the value of the child's labour, of which the father is thereby deprived, amounting also to about 40 francs. With the free gift of education, the schools would not be attended all the year round, but during the winter months, until the children had reached the age of 15 or 16."—(*Yonne.*)

"Here there are numerous objections to the proposed system. 'My child has his private tutor, and does not attend the parish school.' But, because you have a private keeper or guard, are you exempted from contributing to the salary of the rural constable? Because you keep within the boundary of your own grounds, are you exempt from taking the oath of allegiance? Because you have a well in your own yard, are you exempted from assisting in the maintainance of public springs of water? It must be borne in mind that the greatest safeguard to the fortunes of the rich is the education and the moral improvement of the people. To make them pay for education is to deprive them of it, or condemn them to a state of ignorance."—(*Doubs.*)

"In many important localities where there are assistant teachers, the school is divided into several sections, one of which, composed entirely of the very poor, is entrusted to the care of the least intelligent teacher. This is to be regretted."—(*Mayenne.*)

"Free admission is granted to persons comparatively wealthy, having an income of 1,000 francs (£40); and to the mayor's entire family."—(*Ardennes.*)

"There are often abuses of the system, to the prejudice of the master. Some of the municipal councillors enrol their children on the free list."—(*Doubs.*)

Several schoolmasters have explained how the school hours and the holidays could be arranged to fit in with work in the fields. The following are some of the remarks on the subject:—

"In summer, the school hours might be from six till eight in the morning."—(*Nord.*)

"From June to August, school might be held three times a day; from eight till half-past ten, for the young ones; from noon to two, for those employed at the harvest; and, again, from three to five, for the young ones. This arrangement would greatly please the country people."—(*Nord.*)

"They go to the fields with the cattle about eleven o'clock. Let school be held in the early morning during summer."—(*Loiret.*)

"Experience has proved that an amalgamation between tuition and husbandry is possible."—(*Haute-Vienne.*)

"Have only three hours tuition during the summer for those who are more than nine years of age."—(*Ariege.*)

"It has been found practicable and successful in Alsace to amalgamate school hours with field labour."—(*Bas-Rhin.*)

Let us continue to refer to the opinions of schoolmasters:—

"Some of the leading men of the village show a miserly disposition when the question of a tax for schools is mooted; some because they cannot comprehend the value of education; others because they have no wish to see education extended to the poor, saying that if all the world were able to read and write, there would be little or no distinction between those who were well-to-do and those who had nothing."—(*Nord.*)

"I know several excellent teachers who have been dismissed through the instrumentality of some influential persons, enemies to popular education."—(*Oise.*)

"The teachers are often dependent on persons opposed to education."—(*Finisterre.*)

"Some will remark that the parishioners are poor. I say they are penurious, badly disposed, and indifferent; the more so as they are influenced by some who look upon ignorance as an advantage. These truths may appear severe, but it is of the utmost importance that they should be exposed."—(*Haute-Vienne.*)

"In most of the parishes half the population is composed of petty farmers. If the latter, by means of privation and extra work, are enabled to send their children to school, the avarice and jealousy of the landlords are immediately roused, and the farmers, for fear of dismissal, are obliged to make their children work with them."—(*Dordogne.*)

"Generally, those charged with the supervision of the interests of the parish, as regards primary education, are they who are most opposed to its progress."—(*Gers.*)

"Some unconscientious persons have even said that the diffusion of primary education was the foundation of revolutions, and the principal cause of the neglected state of agriculture."—(*Basses-Pyrenées.*)

"The bad attendance of the schools may also be attributed to an opinion, false without doubt, but which has its influential supporters, and is promulgated and forced upon the public. I have often heard it said that the want of hands for agricultural purposes is caused by the extension of education, as those who have attended school show signs of ambition. I have no hesitation in replying that emigration, which is so justly complained of, is not the result of a diffusion of knowledge, but, on the contrary, of ignorance, and an ungovernable desire for wealth."—(*Gers.*)

"Many municipal councillors look upon education as a useless acquirement for poor girls."—(*Gers.*)

(*To be continued.*)

THE ORPHAN SCHOOLS, ASHLEY-DOWN, BRISTOL.

By George C. T. Bartley, Esq.

In considering means for the improvement or extension of any existing system, it is undoubtedly desirable to have as much evidence as possible of the working of that system. The education of the poorer classes of this country, as carried on at large institutions, must, therefore, at the present time be of considerable interest and importance.

Foremost among such establisments is the one at Ashley-down, near Bristol, which last year educated and provided for 1,600 children, and where, in a few

months, when the fifth house is furnished, no less than 2,050 children will be housed and entirely supported.

The history and remarkable manner in which these schools were commenced, and have hitherto been carried on, by Mr. George Müller, are so well known as to require but a passing notice. They were commenced about five-and-thirty years ago by this gentleman, in a small way, the means of support being entirely by voluntary contributions, Mr. Müller, as he says in his narrative, making it a point never to ask for money, but trusting entirely to Providence to supply the requisite means, in answer to prayer. The schools were first situated in Bristol, until, by degrees, they grew so much as to require regular school premises; a large building was accordingly erected at Ashley-down; to this, a second, of like proportions was soon added, then another and another, and now a fifth, at a total cost of one hundred and ten thousand pounds. The appearance of these fine premises is certainly imposing, built of excellent stone, and in every way calculated to stand for ages; they are, nevertheless, perfectly plain, and, both externally and internally, show that every penny has been most carefully laid out.

The ages and sexes of the children is as follows:—

Girls.		
Under eight years of age	280	
Over eight	822	
		1,102
Boys.		
Under eight years of age	208	
Over eight	290	
		498
Total		1,600

The income of the school, as already stated, is entirely derived from donations, and these are received from all parts of the world. Last year they amounted to £19,446 19s. 8d., including the amount realised by the sale of articles, such as jewellery, plate, &c., which were sent as donations. The cost per head of each child is given as £12 15s. 6d., including *every expense without exception*. The details of this important fact are not given in the report, and the institution being of a strictly private character, the accounts are published without many particulars which the outside world would be glad to know. True information on this item of cost would be the more desirable, as, even taking for granted that in the above annual cost no allowance is made for rent, it remains nearly sixpence per head per week cheaper than the great schools at Sutton and Liverpool.

The class of children who are thus clothed, maintained, and educated in this institution, which is probably the largest boarding school in the world, is very various. The appearance of the faces and shape of the heads indicate a superior class of child to that met with at the Hanwell District School, at Sutton, or at Norwood; though it is a fact that some of the children come from the parishes unions which these schools embrace; these are but few, however, and the majority are from healthier districts, and from superior parentage. The rules for admission to the school are very simple, and they are rigidly enforced by Mr. Müller. 1. No child is admitted unless lawfully begotten. 2. Nor unless he or she has lost both parents by death. 3. Nor unless he or she be in needy circumstances. No interest whatever is required to get a child into the school, nor is it expected that any money should be paid for admission; but a list is made in the order of application, and, according to this, the children, if fulfilling the above conditions, are eligible as vacancies arise. Strict investigation is made, and proper documents are required to prove that the three considerations are complied with.

The ages of the children vary from a few months to eighteen or nineteen, a large number being infants hardly able to walk. When once admitted to the school, children rarely leave it until a situation is found for them. Here, this institution has an immense advantage over the district schools, inasmuch as the whole time of each pupil, and of all the pupils collectively in the different classes, is entirely in the hands of the superintendent, without fear of interference on the part of pauper parents.

Many of the children come from unions in various parts of the country, and, as before stated, several from the London parishes. A large number are the children of parents in a superior class of life who have died and left their offspring destitute. It has been supposed that, as all the children have lost both parents prematurely, their constitutions are somewhat less hardy than the average. This may be so, more particularly when it is made known that, of all the children in the school, three-fourths have lost one or both parents from so fatal and hereditary a disease as consumption, but it seems probable that the regular habits, and excellent, though simple food which the orphans receive, more than compensate for this serious disadvantage, and in fact reduces the death-rate to much below that enjoyed by more favoured children, with whom the rules of diet, proper clothing, and attention are so often neglected, either through mistaken kindness, neglect, or ignorance.

During the year ending 26th May, 1869, only 10 deaths occurred in the school out of 1,600, or 6 in the 1,000. This makes the death-rate very low, though it must be borne in mind that there were not 1,600 children in the school during the whole year, but this number was made up on the completion of the buildings, the number at the commencement of the period being 1,149, and the dates at which the increase was made is not discoverable from the report. This somewhat increases the above rate.

The point next to be considered, having given this outline of the school itself, is the educational system pursued, and its success.

In the first place, the school is entirely on what may be called the whole-time system, in contradistinction to the half-time, that is to say, the children, from the time they get up to the time they go to bed, with the exception of play-time, are at *book-work*. The only exception to this is that the boys make their beds, clean their shoes, scrub their rooms, and work a little in the garden-ground round the orphan establishment, in the way of digging, planting, weeding, &c., and knit and mend their stockings; and the girls of course make their clothes and keep them in repair, and are taught all kinds of useful needle and household work.

The Boys' Schools.—All the five houses or schools are conducted on the same principle, and may, therefore, be considered as one. The subjects for study are reading, writing, arithmetic, English grammar, geography, English history, and a little universal history. The amount of knowledge of these subjects, imparted by the age of 14 or 15, when the boys have to be apprenticed, it is impossible to state, but, judging from the writing exercises of a large class approaching that age, there can be no doubt but that the Hanwell and Norwood children, in spite of their physical disadvantages, are much in advance of them. At these schools, it must be remembered, the half-time system is adopted, and but three hours a-day are given to book-work, the remainder to physical training. Again, in the general appearance of the boys, a stranger easily notices a want of smartness and deportment. There is a sort of awkwardness, no doubt accounted for by the absence of drill, which does not form part of the school work at all. The only attempt seems to be the marching, or rather slouching, round the school-room, in and out among the desks, at the same time singing a monotonous air. Such exercises as this can hardly have any good effect on the boys, either physically or morally. Drawing does not seem to be part of the curriculum, neither as a separate study, nor by being introduced into the writing lesson, a plan which has been tried with such good fruit at Hanwell. Again, another feature which is missing in this school, and which in other institutions is found to have so great an effect on all varieties of dispositions, is a

band. Among the boys at these schools there must be the material for an excellent band, and, to say nothing of the capital opening for young musicians, the effect on the whole school would be most beneficial, and, coupled with a systematic drill, would leave little to be desired, save the adoption of the half-time system.

As before stated, no part of the boys' time is devoted to industrial pursuits, their education up to the age of 14 or 15 when they are apprenticed, is entirely devoted to book-work in the subjects given above. From the experience of the half-time schools, there can be no doubt but that all that these orphans learn is imparted to the half-timers in the same number of years, besides the latter having the advantage of a thorough training in industrial pursuits. The writing at Hanwell and Norwood is certainly better, and in drawing, these schools have the advantage over the Clifton establishment, and in an open competition in arithmetic, geography, and in other book-work subjects, the pauper children would be found in no way behind the orphans, in spite of the supposed advantages which the latter enjoy from continued study and the double amount of instruction. This institution affords an excellent example of judging the advantages of the half-time over the whole-time system.

The boys, almost all of them, are apprenticed to some trade. Each has a free choice as to what trade he would wish to follow, but when he has once chosen and been apprenticed he is not allowed to change his mind. The trades selected are very numerous—carpenters, joiners, basket-makers, shoemakers, tailors, plumbers, painters, &c., in fact, almost every known description of work. On leaving the school thus to commence work, each boy has an outfit provided for him.

The various repairs, such as painting, limewhiting, plumbing, &c., and the articles of clothing—boots and tailors' clothes—which at such institutions as Hanwell, Norwood, Sutton, &c., are attended to and made by the boys on the premises, superintended by industrial teachers, are, of course, at the orphan establishment, performed by outside labour. This is to be regretted, as the occupation of the children in this way, though, perhaps, it does not effect any actual saving in expense, is certainly useful in making them hardier in after-life, besides forming a change to the monotony of book-work.

The Girls' Schools.—The course of study here is similar to that of the boys, and the remarks made on the latter might apply, to a great extent, to the former. Drill is, of course, not attempted, though as much required, and it might do as great an amount of good as at Hanwell. In the household duties the elder girls assist, though not as much as might be desirable. In the washing department, for instance, everything is done on a gigantic scale; large washing-machines are employed, worked, by-the-bye, not by the elder girls but by washer-women; centrifugal drying-machines take the place of drying yards, and every contrivance which modern science has invented for lessening labour may be seen in daily use. This is very advantageous, no doubt, for the wants of the institution, but it is not a good training for a young woman who is to go out as a servant. She would probably have to wash in a small family, and might hardly understand how to set about hanging clothes out to dry, as she would have been accustomed to put them into a box, to turn a handle, and in a few minutes find them ready dried for the next process. In the Clifton parish workhouse school the whole of the washing is done by the elder girls, and in the old-fashioned cottage manner; and though, no doubt, this is not so expeditious or modern, it forms undoubtedly a better and more useful system of training for the class of persons engaged.

Again in cooking, in the same way; the patent stoves, which in some mysterious manner can cook an incredible number of joints almost as it were by machinery, are very useful, but they require an experienced person to look after them; and all the girls can do, if they do as much, is to put the joints, potatoes, soups, &c., in to cook, and take them out again when they are told that they are ready. This does not teach them how to manage the stoves, or to do such common cooking as they are certain to meet with in the situations for which they are supposed to be training.

During the year ending May last, seventy-eight girls were sent out for service; and from the careful records kept of the subsequent history of both boys and girls who have obtained situations, it is a fact that not nearly 5 per cent. go wrong afterwards. It must be remembered that very bad children are not kept here. Last year three were sent away, as it was thought they would have a bad effect on the rest, so that probably the results are about equal to the large district schools, and, in fact, nothing better can be expected or hardly wished for.

The opinion of all who visit this remarkable institution is wonder at the systematic arrangement and order throughout. Nothing, indeed, shows more clearly the business habits and excellent management of the founder than the careful attention to all points of detail. It is somewhat a pity, however, that the schools have so much the air of a show. The daily visitors, by hundreds, are sent through the rooms as mechanically as if the whole were clock-work. The children are discovered doing certain exercises; all the books in the teachers' sitting and bedrooms are as carefully placed as if set by a straight-edge; the clothes are folded with too great a nicety; the kitchen things are in such perfect order as was never seen in a real kitchen—two drawers are left open to show the knives, forks, and spoons arranged like trinkets in a casket. All this gives the visitor an impression of unreality, and he is tempted to look into the other dresser-drawers, which indeed he does not find so perfect, though it must be owned, a great deal more like nature. While fully appreciating the value of neatness, this mechanical perfection in every detail with children, even if always kept to, is certainly not natural nor in keeping with the temperament of many, and when the youthful mind sees such little show arrangements as the dresser-drawers above-mentioned, it is apt to instil into its mind, almost unconsciously, a spirit of hypocrisy, which may never again be eradicated.

In concluding these remarks on this school, in many ways unique in thecountry, if not in the world, it must be said that the plan of education requires to be somewhat modified and enlarged, and the half-time system introduced. In the hours daily thus gained a complete course of drill should be adopted, both for the boys and girls, and also a system of industrial training arranged, more particularly for the boys. Were this done, or, in other words, were the school placed somewhat on the footing of the one at Norwood, it might be made, without doubt, the best school for poor children in the country, owing to the superior class of children, and the remarkable ability and goodness of the founder and manager.

Fine Arts.

Acquisitions of the Louvre.—M. Louis Lacaze, a well-known collector, just deceased, has bequeathed a magnificent gallery of old pictures, principally French, of the 18th century, to the Louvre. The collection is estimated to be worth £50,000 to £60,000. The French pictures include two important works by Boucher; two portraits, by P. de Champagne; ten works by Chardin, M. Lacaze's favourite painter, including some of his best pieces; five by Fragonard; four fine portraits and heads, by Greuze; two well-known works by Lancret; a number of historical portraits, by Largillière, J. M. Nattier, Tocque, and Vanloo; examples of Coypel, F. Lemoine, Lenain, Monnoyer, Oudry, and Raoux; three of Pater's best works; and four capital pictures by Watteau. The collection contains also a fine Rubens,

"Mary de Medicis, as France;" three Rembrandts; two works by Ribeira; a child, by Velasquez; a Tintoretto, two Titians, a Salvator Rosa; a number of works by Teniers, Ostade, Snyders, Cuyp, Jordaens, and others. M. Lacaze was son of an ancient peer of France, and in possession of a large income; he was Doctor in Medicine, and although he did not practice, never ceased to keep up with the progress of science. In 1849, during the visitation of the cholera, he converted his house into a temporary hospital, and for three weeks gave himself up night and day to the care of his unfortunate patients. His gallery was freely open to all the world, and nearly all his pictures have been copied by various artists. This collection is to be kept together, and to bear the name of the donor; rooms are now being prepared for it in the old portion of the Louvre, now occupied by the antiquities of the Campana collection. The Lacaze gallery is expected to be opened about the end of the present year.

Manufactures.

Mineral Statistics of Italy.—A correspondent from Italy writes:—"In the article on the 'Mineral Statistics of Italy,' vol. xvii., p. 854, I notice one or two errors which require correction. In the first place, the statistics are for 1865, and not 1867; at all events, the figures correspond exactly with those given in the 'Statistica del Regno d'Italia Industria Mineraria,' anno 1865,' published at Milan and Florence in 1868. Secondly, I must call attention to an error in connection with the gold ore. The quantity of gold ore is put at 103,800 kils,, or, roughly speaking, 100 tons, a quantity which is evidently far too small; but as the official document above-mentioned contains the same figures, the writer of the article is not to blame. In speaking of the produce of the gold ores worked near Macugnaga, it is stated that 'they do not contain ten or eleven grains of gold in a hundred-weight,' or 8 dwts. or 9 dwts. per ton. The mines referred to are evidently the Pestarena mines, of which it is said in Phillips' 'Mining and Metallurgy of Gold and Silver,' p. 521: 'The Pestarena ore has yielded 2½ oz. of gold per ton.' Again, in the *Mining Journal* of 9th October, 1869, p. 751, I find that 326 tons of ore from Pestarena yielded 490 oz. of gold, which is at the rate of about 1½ oz. of gold to the ton, or taking the entire produce of all the mines belonging to the Pestarena Company, some of which are many miles from Macugnaga, we have 883 tons of ore yielding 768 oz. of gold, which corresponds to more than 17 dwts. per ton, a produce twice as large as that mentioned in the article in question."

Commerce.

Electric Light on Board Ship. — The General Transatlantic Company of France, after a series of successful experiments, has decided on the adoption of the electric light on board its vessels, and has entered into an engagement with M. Berlioz, director of the Alliance Company, of Paris, for the establishment of the necessary apparatus for that purpose. It is believed that the use of electricity will tend greatly to facilitate navigation, and to add to the security of the vessels.

Colonies.

State of Queensland.—The *Brisbane Courier* observes that there never was a time in the history of Queensland when her prospects looked so bright. Sugar is an assured success; cotton is the same, and will improve in price as its manipulation is improved. There is an unlimited extent of unoccupied land, which the two nearest colonies have not. The mines are apparently in their infancy, the cattle trade is flourishing, and the Suez Canal is nearly complete. Let the reader take a map of New Holland, and observe what an enormous indentation occurs in the north of the island. How admirably it is adapted for a tramway at the foot of the Gulf, opposite such a harbour as Port Denison, thus in time sending the produce of the whole country by another route than the long and dreary one of Cape Horn; and then there are three rivers—perennial ones—from which the railway could earn immense sums by irrigation as it travelled, a source of revenue overlooked before; and then, again, there is now Polynesian labour, protected from the inroads of slavers.

Publications Issued.

Link-Motion and Expansion-Gear Practically Considered; by N. P. Burgh, engineer. (*E. and F. N. Spon*, 48, *Charing-cross.*) — This will be completed in about ten parts, of which the first is now ready. Excepting in the work "Modern Marine Engineering," there is no literature that contains practical description and illustration of the link-motion and expansion-gear. Mr. Burgh has, therefore, put himself in communication with the principal mechanical engineering firms of England and Scotland, for the purpose of making this work the standard reference on the above subjects. The following firms have already contributed drawings and articles for this work:—Messrs. Penn, Maudslay, Watt, Rennie, Humphrys, Ravenhill, Napier, Spencer, Dudgeon, Harvey, Hawthorn, Douglas, Wood, Shelmerdine, Hurdley, Jaffery; and other firms are preparing drawings, &c., so that the entire subject will be fully digested, as it should be for practical use.

Notes.

Extract of Vegetables.— A method of preparing a liquid containing the extracted matter of vegetables and condiments, for culinary purposes, has been invented by M.M. Villepoix and Bonaterre. In a copper still or other vessel, tinned inside, and having a double bottom, are placed 75 litres of water, 2 kilogrammes of common salt, 18 kils. of turnips, 8 kils. of leeks, ¾ kil. of onions, 3 kils. of celery, ½ kil. of parsley, 200 cloves, and 8 cloves of garlic; distil with a gentle fire, and draw off 30 litres. The aromatic liquor should be distilled into a receiver containing 12 kils. of salt and 8 kils. of sugar. These last-mentioned substances fix the aroma of the liquor, and prevent fermentation. The object of the salt in the vessel itself is to augment the boiling point of the water, and to allow of the distillation of the essential oils or aromas of the plants.

Correspondence.

The Channel Passage. — Sir, — Will you kindly advise me what I should do under the following circumstances:—I have been much interested lately in the papers published in the *Journal of the Society of Arts* with reference to the Channel passage; and, while passing a few weeks here, I have been trying to overcome one great obstacle, or rather difficulty, that many passengers encounter. Captain Morgan, the superintendent of the mail-packets, and the captain of *La France*, have kindly helped me to carry out my experiments. The weather has not been quite rough enough lately to continue them;

but one day, when I crossed twice, there was a capital opportunity, and a heavy cross sea. I had a cot made on a principle that may, with many persons, prevent sea-sickness; it was rigged in the fore-cabin, where there was most motion. While I remained in the cot, I kept well; but when I left it, I was as ill as any of the rest; when I returned I was well again; though I dare-say there is still room for improvement. As space is needed, it would only answer in state-rooms or special cabins, and would be more suitable for steamers or vessels much larger than the present mail boats. However, special cabins might be supplied and paid for accordingly. The point I desired to attain was, to have a berth that would keep horizontal under any circumstances. The difficulty to overcome was the independent motion, that is, either twisting or getting too much way on, after the pitch or roll of the vessel. The first, the twisting, is quite overcome by hanging the cot from two or four hooks, four being preferable, six or seven inches apart. The second, or independent swing, cannot quite be overcome, but it must not be stopped abruptly; therefore, below the berth, in the exact centre, directly perpendicular from the hooks by which it is hung, I placed vulcanised india-rubber springs, "accumulators," such as serve to keep doors shut. They "give," but yet always tend to bring the berth back steadily to the exactly horizontal position. They must not be too strong, nor too pliant. Further experiments would show how strong or how many might be best used. I think four medium-sized would suffice, but they should meet in the centre of the bottom of the berth, though it would be an advantage to have the other ends spread over the deck floor, so that all the power might not be caught at once. I only had two; one weak, one strong, first in line, then fastened together alongside, but even then they were not strong enough to overcome the swing in one direction, though a touch of the hand sufficed to steady the cot. As the eye would be affected by the motion of the ship, though the cot kept still, either curtains must be used or the eyes must be kept closed. I have therefore added curtains; they need not be quite opaque. An ordinary hammock hangs from both ends stretched out, not compressed, so that in one way the full motion of the vessel is experienced; by contracting into six inches the motion that would be given to six feet, or 2½ feet length or breadth, a very nearly horizontal position can be maintained. In addition to the spring-band, a slack-rope might be fastened below, to keep the cot within the extreme limit of the cabin; but if the rope has no spring, or is made too tight, the effect, of course, is a sharp stop; this the spring prevents. It will be for further experience to show how best to adapt the spring. I have carried the experiment so far that we can see reason to believe a great boon may be thus provided for many who suffer at sea; in fact there is no doubt but that small cabins as well as cots might be fitted on this plan, with more or less success. I have ventured to lay the particulars before you, trusting that you will excuse the trouble, if they do not interest you; but you will be able to tell me, I believe, what is the best plan to adopt; to prevent the idea being patented by some one who might make it a dear monopoly, at least the patentee might prevent others trying to improve upon it, so that the benefit might be restricted instead of extended. I fear that if I put myself in communication with any one who would carry out further experiments, he might wish to monopolise any good in it, or expect me to meet the expense of experiments and patent. I seek no profit, and want no loss. I estimate that it would require a cabin 11ft. by 5ft. 6in. to give the berth full swing. At first, I made a working model, which answered well, but the practical test has been satisfactory with a full-sized cot. Yet frequent experiments in crowded steamers, full of sick pasengers, test more than my philanthropy and the invention.—I am, &c.,

JOHN SCARTH.

Dover, Oct 4, 1869.

MEETINGS FOR THE ENSUING WEEK.

MON.....Entomological, 7.
British Architects, 8.
Society of Engineers, 7½. Discussion on paper read by Mr. P. F. Nursey, "On English and Continental Intercommunication;" and (time permitting) Mr. C. J. Light, "On the Need for further Experiments on Strength of Materials."

TUES ...Anthropological, 8.

THUR ...Linnæan, 8. 1. M. J. Correa de Mello, "On some Brazilian Plants from the Neighbourhood of Campinas." 2. Mr. N. Dalzell, "Note on two Indian Plants." 3. Mr. R. Trimen, "On the occurrence of a Luminous Insect near Buenos Ayres."

Patents.

From Commissioners of Patents' Journal, October 22.

GRANTS OF PROVISIONAL PROTECTION.

Bricks, &c., ornamenting—2938—B. Baugh and B. Walters.
Cements, manufacturing—2940—H. Reid.
Door knobs, fixing—2924—T. Rice.
Envelopes used in extracting oil from oleaginous seeds, &c.—2706—C. Eskrett and H. Searle.
Liquid meters—2932—C. E. Brooman.
Looms—2914—J. C. Ramsden.
Match-box candlesticks—2394—F. Mazet.
Mineral oils, treating—2950—A. C. Kirk.
Motive-power—1994—H. A. Bonneville.
Nails, &c., manufacturing—2952—J. and J. A. Huggett.
Paper-hangings, manufacturing—2954—A. V. Newton.
Printing inks, &c.—2946—W. C. May.
Railway chairs, securing rails in—2912—J. McKenzie.
Railway fish-plates and chairs, constructing and fastening—2918—R. Chapman.
Railway wheels, &c.—2936—W. Kelsey.
Ships, &c., wheels for propelling—2916—W. E. Newton.
Socket and flanged pipes, casting—2920—J. Hilton.
Steam boilers—2922—G. W. Hawksley and M. Wild.
Water, apparatus for distilling and producing fresh potable—292—H. Wainwright.

INVENTIONS WITH COMPLETE SPECIFICATIONS FILED.

Chain cable stoppers—3006—W. R. Lake.
Clocks—3028—J. M. A. Stroh.
Counterpanes, &c., weaving—3042—J. and J. Kippax.
Fire-arms, breech-loading—3003—J. Mackie.
Iron and steel—3025—J. Player.
Needles, &c., cases for—2998—W. Avery and A. Fenton.
Railway carriage wheels—2997—N. Washburn.

PATENTS SEALED.

1265. R. Foster.
1270. P. Jensen.
1274. J. Cudbird.
1280. G. White.
1286. J. Smith.
1290. S. Oakman.
1296. R. Flower & M. M. Crewly.
1298. J. H. Sams.
1324. O. Rose.
1332. F. Bujeaud.
1337. R. Craig.
1458. P. W. Flower, H. Nash, and R. Heathfield.
1493. L. A. V. Dubourg.
1563. M. Jarvis and E. Millward.
1883. S. Holmes.
2259. T. Winter.
2263. E. Attenborough.
2507. T. Whitehead.

From Commissioners of Patents' Journal, October 26.

PATENTS SEALED.

921. J. Macintosh.
1293. W. R. Lake.
1304. O. Moseley.
1308. G. Heyes and E. Barlow.
1313. E. Cooper.
1318. D. Greig, R. Burton, J. Gozney, & T. Atkinson.
1322. M. Wilkin and J. Clark.
1336. H. J. Seels.
1371. A. and E. Fau.
1472. C. Ferguson.
1500. R. Wilson.
1564. T. Herbert & J. C. Fowler.
1674. C. E. Brooman.
1678. W. E. Newton.
1944. J. Lomax.
1970. W. E. Gedge.
1997. S. Brooke.
2106. J. Piret.
2303. F. Jackson.
2333. F. C. Colney.
2397. H. Bessemer
2426. J. Lewis.
2457. R. F. Fairlie.
2527. T. Coley.
2536. H. Yates.
2570. H. E. Newton.

PATENTS ON WHICH THE STAMP DUTY OF £50 HAS BEEN PAID.

2410. G. and E. Ashworth.
2726. A. V. Newton.
2740. G. Haseltine.
2754. B. J. B. Mills.
2767. G. F. L. Meakin.
2763. J. Storer.
2796. P. Adie.
2856. J. Chubb and W. H. Chalk.
3022. T. W. Webley.

PATENTS ON WHICH THE STAMP DUTY OF £100 HAS BEEN PAID.

2824. J. B. Payne.
2821. J. Clark.
2842. J. Spence.
2853. A. Chaplin and G. Russell.
2891. J. J. Ridge.
2877. W. Clark.